



## Tier 2 Priority: Trusted Autonomous Systems

The development and application of Trusted Autonomous Systems (TAS) for ADF operations will enable increased situational awareness and persistent surveillance solutions, supporting enhanced decision making abilities in complex highly contested environments with the ability to deliver disruptive effects; all the while reducing the risk to personnel and expensive platforms. The focus here is on the ability to sense and understand the environment from uninhabited platforms across all domains, processing information in real time, to detect, classify and localise objects and situations of interest, to enable new actions to be planned and executed, to develop support systems that enable the human operator to manage the capability and decisions with minimum supervisory control; to develop and evolve behaviours within the autonomous systems; including distributed decision making and task allocation; reasoning and negotiating over competing objectives (across single and multiple platforms); and communications protocols to support distributed or collaborative autonomy.

This opportunity is seeking submissions to advance TAS capabilities to support one or more of the following operational areas:

- **Operating in a CBRN Environment:** Enabling the joint force to operate safely and effectively in contested chemical, biological, radiological and nuclear (CBRN) threat environments.
- **Agile Command and Control:** Redefining the way the ADF conducts command and control across all operations in order to deliver a warfighting edge.
- **Information Warfare:** Delivering information warfare capabilities that are integrated across human, information and physical dimensions to allow the Australian Defence Force to fight in and through contested information environments.

### A) Operating in CBRN Environments

The threat of CBRN attack against military and civilian populations is growing. State and non-state actors are increasingly willing to resort to indiscriminate methods and the proliferation of CBR agent synthesis manufacturing processes is increasing accessibility. The ADF has the ability to survive the surprise created by CBRN weapons, but there is a need to do more by being able to continue with operations and manoeuvres safely and effectively within contaminated environments for prolonged periods of time. This requires new advanced and integrated capabilities for detecting, identifying and monitoring CBRN threats as well as for warning and reporting, containment, protection against and managing CBRN hazards, mitigating health risks and improving human resilience to exposure and exhaustion.

### B) Agile Command and Control

Prevailing in future complex and contested environments requires the ADF to bring together capabilities from across all domains of warfare to achieve complementary and coordinated effects. Future multi-domain operations will be high-velocity and high-manoeuve with the aim of presenting multiple dilemmas to any adversary at an unmatched operational tempo. The ADF already conducts multi-domain operations; however, the command and control (C2) is human intensive and cognitively complex. Greater agility is needed to deliver real operational advantage across the continuum of conflict. The future Agile C2 must be robust, resilient, responsive, flexible, adaptive and reconfigurable and must be able to deal with many concurrent operations.



### C) Information Warfare

Information environments are ubiquitous and they pervade all aspects of life. We depend on them for our social, commercial, civilian and military systems. Being globally connected and with a low cost-of-entry, information environments are not benign and are highly contested by a range of actors from criminals to nation states. Furthermore, the nature of strategic contests have changed with many nations now using information warfare to achieve their objectives without ever exceeding the threshold of war. The information domain is a critical theatre of warfare. The success of future ADF operations will depend on our ability to fight in and through contested information environments. This will require innovative information warfare capabilities that enable the ADF to manoeuvre in the information domain.